I Claim:

1. A phase-stepping point diffraction interferometer comprising:

a light source for directing light toward a test optic along an optical path;

a Wollaston prism for shearing the light into a signal beam and a reference beam;

a diaphragm having a pinhole through which the reference beam is directed for producing a spherical reference wave;

means for detecting an interference fringe pattern produced by recombining the signal beam and the spherical reference wave;

means for translating the Wollaston prism in a lateral direction with respect to the optical path so as to cause phase shifting of the signal beam and the spherical reference wave; and

means for measuring a phase value of the interference fringe pattern by translating the Wollaston prism in a lateral direction with respect to the optical path.

2. The interferometer as in Claim 1,

wherein the Wollaston prism is positioned along the optical path between the light source and the test optic.

3. The interferometer as in Claim 1,

wherein the Wollaston prism is positioned along the optical path downstream from the test optic.

4. The interferometer as in Claim 1,

wherein the means for recombining the spherical reference wave and the signal beam is a polarized beam splitter.

5. The interferometer as in Claim 1,

wherein the interferometer is a Mach-Zender interferometer.

6. The interferometer as in Claim 1,

wherein the means for translating the Wollaston prism in a lateral direction comprises a piezoelectric transducer (PZT) operatively connected to the Wollaston prism, wherein said PZT includes an encoder.

7. A method for interferometrically testing a test optic, said method comprising the steps of:

directing light from a light source along an optical path toward the test optic;

directing the light through a Wollaston prism to shear the light into a reference beam and a signal beam;

directing the reference beam through a pinhole of a diaphragm to produce a spherical reference wave;

recombining the signal beam and the spherical reference wave to produce an interference fringe pattern on a detector; and

measuring a phase value of the interference fringe pattern by translating the Wollaston prism in a lateral direction with respect to the optical path so as to phase-shift the signal beam and the spherical reference wave.

8. The method of Claim 6,

wherein the Wollaston prism is connected to a piezoelectric transducer (PZT) which includes an encoder, wherein said PZT translates the Wollaston prism in a lateral direction to phase step the light.

9. The method of Claim 6,

wherein the light from the light source is directed in series first through the test optic and then through the Wollaston prism positioned downstream from the test optic.

10. The method of Claim 6,

wherein the light from the light source is directed in series first through the Wollaston prism and then through the test optic positioned downstream from the Wollaston prism.